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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,896

04/21/2005

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03500.017697.

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7590

11/09/2009

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EXAMINER

JOSEPH, DENNIS P

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

11/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,896	Applicant(s) ASAO ET AL.	
	Examiner DENNIS P. JOSEPH	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-9 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-9 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to amendments for No. 10/531,896 filed on September 23, 2009. Claims 1, 4, 5 and 7-9 and 21 are pending and have been examined.

Claim Rejections – 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. **Claims 1, 4, 5 and 7-9 and 21** rejected under 35 U.S.C. 103(a) as being unpatentable over Struyk (US 2003/0128218 A1).

Struyk teaches in Claim 1:

A color display element comprising a unit pixel which is comprised of a plurality of sub-pixels comprising a first sub-pixel and a second sub-pixel ([0042]-[0044] disclose sub-pixel

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structures which are composed of different colors and the color variances within each pixel), the second sub-pixel having a green color filter (**[0042], [0084] and [0085] disclose green color filters**) and a medium which has an optical property modulated in accordance with a voltage applied to each of the sub-pixels and is located in each of the sub-pixels (**Figures 3A, 3B and 4 and [0063]-[0065] disclose the voltage applied to each of the colors within the pixel. The application of voltages to the sub-pixels is respectfully, obvious**),

wherein the color display element has a means of applying a voltage to the first and second sub-pixels (**As for the application of voltages (changing of them) to the sub-pixels, this is respectfully obvious**), and

wherein an optical property of the medium located in the first sub-pixel is modulated in accordance with a voltage applied to the first sub-pixel in a range within which a brightness of light passing through the medium is variable (**As discussed above, various voltage levels are applied to each of the sub-pixels and by doing so, the optical property, i.e. color intensity, is modulated or changed. This is well known in the art and as a result, the brightness is altered. [0118] discloses green/magenta filter pairs (read magenta color filter as the first sub-pixel) and these colors are complementary. As for the application of voltages to the sub-pixels (changing of them), this is respectfully obvious**)

wherein an optical property of the medium located in the second sub-pixel is modulated in accordance with a voltage applied to the second sub-pixel in a range within which a brightness of light passing through the medium is variable (**Figures 3A, 3B and 4 and [0063]-[0065] disclose the voltage applied to each of the colors within the pixel. The language "variable"**

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is broad and varying amount of voltage applied would change the color intensity. As noted above, the modulation of voltages (changing of them) is obvious); but

Struyk does not explicitly teach “and in a range within which a chromatic color assumed by light passing through the medium changes within red and blue.”

However, chromaticity relationships between RGB colors is well known in the art and the relationship is shown by chromaticity diagrams. The color combinations are altered as one of the color changes is being modulated and the chromaticity obviously changes. To clarify, it is well known that adjusting the amount of one of the primary colors will adjust the ratio of another color and that the range will vary between the primary colors, such as red and blue. Examiner asserts Official Notice to chromaticity diagrams/tristimulus graphs which show combinations of RGB, CYM (complements which follow the same principles), etc.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention that the variations of color combinations that are expressed by chromaticity diagrams would obviously be used with Struyk's display means with the motivation of KSR principles that is a well known technique in the art. Several other KSR principles can be applied here as well.

Struyk teaches in Claim 4:

The color display element according to claim 1, wherein a voltage making the light passing through the medium assume magenta is applied to the first sub-pixel ([0102] and [0118]

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describe green/magenta complementary pairs of filters. As for the passing between red and blue, this is obvious and discussed above), and a voltage making the light passing through the medium assume s a maximum brightness of green is applied to the second sub-pixel, whereby the unit pixel displays white color. (The language "variable" is broad and varying amount of voltage applied would change the color intensity. [0025] discloses complementary colors mixed with each other will result in a shade of white and this is also obvious given the concept of complementary colors. [0118] discloses green/magenta filter pairs)

Struyk teaches in Claim 5:

The color display element according to claim 1, wherein the first sub-pixel has a magenta color filter (**[0118] discloses green/magenta filter pairs (read magenta color filter as the first sub-pixel and green as the second sub-pixel) and these colors are complementary)**

Struyk teaches in Claim 7:

The color display element according to claim 5, wherein a voltage in the range within which the chromatic color changes is applied to the first sub-pixel, to display a color as a result of overlapping the chromatic color and a color of the magenta color filter with each other. (**The obviousness statement made in Claim 1 and the reasoning there is applicable here as well, with regards to the chromaticity diagrams and adjusting the ratios being well known. The language "to display a color" is broad and by applying voltages to the various sub-pixels, a color can be displayed. It is well known that complementary colors overlap each other, [0102])**

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Struyk teaches in Claim 8:

The color display element according to claim 5, wherein a voltage making the lights passing through the mediums have a maximum brightness in the range within which a brightness of the light is variable is applied to the first and second sub-pixels, whereby the unit pixel displays white color. ([0051], [0061] **discloses the maximum intensity value of any individual color component and there is inherently a maximum gray scale that can be reached**)

Struyk teaches in Claim 9:

The color display element according to claim 5, wherein modulations of a same gray level in the range within which a brightness of the light is variable are applied to the first and second sub-pixels respectively, whereby an achromatic color of half tone is displayed in the unit pixel. ([0025], [0043], **etc disclose achromatic colors such as white and black which can be displayed**)

Struyk teaches in Claim 21:

A method for driving a color display element which contains a medium an optical property of which changes in accordance with an applied voltage, the element being comprised of a unit pixel comprised of a plurality of sub-pixels comprising a first sub-pixel and a second sub-pixel ([0042]-[0044] **disclose sub-pixel structures which are composed of different colors and the color variances within each pixel**), the second sub-pixel having a green color filter ([0042], [0084] and [0085] **disclose green color filters**), which comprises the steps of:

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applying to the first sub-pixel a voltage modulating an optical property of the medium in a range within which a brightness of light passing through the medium is variable (**As discussed above, various voltage levels are applied to each of the sub-pixels and by doing so, the optical property, i.e. color intensity, is modulated or changed. This is well known in the art and as a result, the brightness is altered. [0118] discloses green/magenta filter pairs (read magenta color filter as the first sub-pixel) and these colors are complementary)** and

applying to the second sub-pixel a voltage modulating an optical property of the medium in a range within a brightness of light passing through the medium is variable (**Figures 3A, 3B and 4 and [0063]-[0065] disclose the voltage applied to each of the colors within the pixel. The application of voltages to the sub-pixels is respectfully, obvious. The language "variable" is broad and varying amount of voltage applied would change the color intensity); but**

Struyk does not explicitly teach “in a range within which a chromatic color assumed by light passing through the medium changes within red and blue.”

However, chromaticity relationships between RGB colors is well known in the art and the relationship is shown by chromaticity diagrams. The color combinations are altered as one of the color changes is being modulated and the chromaticity obviously changes. To clarify, it is well known that adjusting the amount of one of the primary colors will adjust the ratio of another color and that the range will vary between the primary colors, such as red and blue. Examiner

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asserts Official Notice to chromaticity diagrams/tristimulus graphs which show combinations of RGB, CYM (complements which follow the same principles), etc.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention that the variations of color combinations that are expressed by chromaticity diagrams would obviously be used with Struyk's display means with the motivation of KSR principles that is a well known technique in the art. Several other KSR principles can be applied here as well.

Response to Arguments

6. Applicant's arguments considered, but are respectfully considered to not be persuasive.

Applicant agrees that Struyk does indeed teach of a sub-pixel structure with the use of color filters. However, Applicant feels that the modulation of voltages so that the color passing through the medium changes between red and blue is not taught by Struyk. However, it is important to note that the rejection is made under a 103, and not a 102. It seems to examiner that it is a very well known technique to alter the ratios of the primary colors RGB by using chromaticity/tristimulus graphs. As the ratio of one color is adjusted, at least one of the other color's ratios is also adjusted. The application of voltages is obvious, if not inherent, for allowing light emitting of the sub-pixels. Examiner asserted Official Notice to the common use of these in the art and the reasoning on why they are used. It seems to examiner that Applicant is not arguing the actual teaching of such diagrams, but rather that one of ordinary skill would not use it.

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However, this respectfully is not persuasive. Several KSR principles apply here, the most relevant one being the common and known work in the same field of endeavor. This principle does indeed motivate one of ordinary skill to use the technique for several known benefits. The modification of Struyk would not destroy the invention because the modification does not necessarily alter the structure, just the driving method, so examiner disagrees with the argument that it has an extensive reconfiguration. Regardless, that doesn't mean it teaches away from using it if there is no adverse effect. Furthermore, since the application of the voltages is obvious, implementing a known driving method would, respectfully, not only be obvious in light of KSR principles, but enabling as well.

If Applicant wishes to traverse the Official Notice, examiner will provide references which reinforce that this is a commonly used technique.

Applicant is advised to overcome the current rejection by claiming the structure of the various subpixels as well as the percentages of light that are transmitted at various wavelengths. Several figures of Applicant's invention could be claimed to overcome the current rejection.

Conclusions

7. Applicant's amendments and non-persuasive arguments necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS P. JOSEPH whose telephone number is (571)270-1459. The examiner can normally be reached on Monday-Friday, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ

/Amr Awad/

Supervisory Patent Examiner, Art Unit 2629